

In the Claims

This listing of claims will replace all prior versions and listings of claims in this application.

1-10 (canceled)

11 (currently amended). A method of detecting an analyte, wherein said method comprises:

forming a medium of a holographic element of a sensor *in situ* in the presence of a pore-forming agent, wherein the use of a sensor that comprises a the holographic element, wherein the holographic element comprises comprising a the medium and a hologram disposed throughout the volume of the medium, wherein the medium contains pores, wherein an optical characteristic of the hologram changes as a result of a variation of a physical property occurring throughout the volume of the medium, wherein the medium is obtainable by formation *in situ* in the presence of a pore forming agent, wherein the agent is not present in the sensor or does not react with the analyte and the sensor; and wherein said method of detection comprises

contacting said sensor with a sample ~~suspecting-suspected~~ of containing the analyte; and

determining whether the variation of a physical property occurs.

12 (previously presented). The method according to claim 11, wherein the physical property is the size of the medium.

13 (previously presented). The method according to claim 11, wherein the optical characteristic is the reflectance, refractance or absorbance of the holographic element.

14 (previously presented). The method according to claim 11, wherein the agent is a gas.

15 (previously presented). The method according to claim 11, wherein the agent is a liquid.

16 (previously presented). The method according to claim 11, wherein the agent is water.

17 (previously presented). The method according to claim 11, wherein the agent is a solid obtainable by extraction of the agent after the formation.

18 (previously presented). The method according to claim 11, wherein the medium is a polymer obtainable by the polymerization of monomers *in situ*.

19 (previously presented). The method according to claim 18, wherein the monomers include hydroxyethyl methacrylate.